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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/711,908	11/15/2000	Norikatsu koide	PM268415	8191

909 7590 10/08/2002

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EXAMINER

LOUIE, WAI SING

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 10/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/711,908

Applicant(s)

KOIDE ET AL.

Examiner

Wai-Sing Louie

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (US 5,537,433) in view of Shakuda (US 5,557,115). Please see the description of record.

Claims 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (US 5,537,433) modified by Shakuda (US 5,557,115) as applied to claim 21 above, and further in view of Ishikawa et al. (US 5,977,565). Please see the description of record.

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (US 5,537,433) modified by Shakuda (US 5,557,115) as applied to claim 21 above, and further in view of Nitta et al. (US 6,258,617). Please see the description of record.

Response to Arguments

Applicant's arguments filed 7/24/02 have been fully considered but they are not persuasive.

- The 35 U.S.C. 112, first paragraph rejection is withdrawn in view of the remarks in paper no. 9.
- Applicant argues that reference Watanabe (US 5,537,433) and Shakuda (US 5,557,115) do not disclose the formula, wavelength λ (nm) = $1239.8/E_g$ (eV), $E_g \leq 3.4*(1-x) + 1.95*x - 1.0*x*(1-x)$ and further Shakuda do not teach or suggest the relationship between the wavelength of visible light emitted from the light-emitting layer, the photon energy, and the mole fraction of indium. However, Shakuda discloses a blue light LED having the indium mole fraction is set 0.15 (Shakuda col. 4, line 12) and the light-emitting layer emits light have a peak wavelength of 470 nm, which meets the mole fraction calculated by the above formula (Shakuda col. 4, lines 19-21). Shakuda teaches to regulate the ratio of indium to gallium in the light emitting compound could change the wavelength of light emitted by the LED (Shakuda col. 4, lines 27-29). The following is the calculation:

Wavelength of Shakuda is 470 nm and $E_g = 1239.8 / 470 = 2.637$

The mole fraction of indium from Shakuda is 0.15

$$E_g < 3.4*(1-0.15) + 1.95*0.15 - 1.0*0.15*(1-0.15)$$

$$E_g < 3.055$$

Therefore, E_g calculated by the wavelength is 2.637, which is smaller than 3.055 calculated by the mole fraction. Shakuda satisfies the relationship between the wavelength of visible light emitted from the light-emitting layer and the mole fraction of indium.

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- Applicant argues that Shakuda does not teach or suggest setting the mole fraction of indium to 0.19-0.26. However, in the case where the claimed ranges “overlap or lie inside the ranges disclosed by the prior art” a prima facie case of obviousness exists (In re Wetheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990)). Similarly, a prima facie case of obviousness exists where the claimed ranges and the prior art ranges do not overlap but are close enough that one skill in the art would have expected them to have the same properties (Titanium Metals Corporation of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985); See MPEP 2144.05).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (703) 305-0474. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ws1

October 2, 2002

